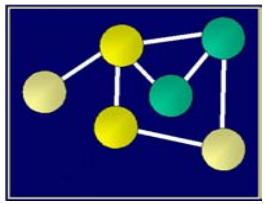


# Open Applications Group, Inc.

## OAG/NIST B2B Testbed Initiative:

### Status Update


Jacques Durand
Fujitsu

Hima Mukkamala
Sybase

Monica Martin, Mike Wheaton, Mike Vella
Sun

Prof. Hyunbo Cho
POSTECH, Korea

Deborah Hamill, Bill Harelson
Accordare

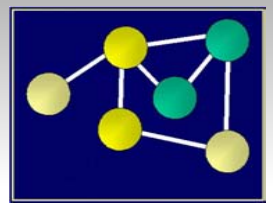
Pat Snack
AIAG

Fred Falten, Andrew Cameron
GM

Tony Blazej
OAG

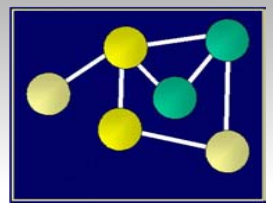
Serm Kulvatunyou, Nenad Ivezic, Simon Frechette
NIST


11 February 2003, San Jose



# Outline

- **OAG/NIST Testbed Overview**
  - Purpose, Vision, Functionality, and Architecture (Nenad)
- **Testbed Focus Areas**
  - Content (Serm)
  - Business Processes (Serm)
  - Security (Hima)
- **Selected Testbed Use Cases**
  - GM-motivated Scenarios (Nenad)
  - AIAG Inventory Visibility and Interoperability (IV&I) (Nenad)
- **International Collaboration**
  - Korean Testbed Partner (Cho)
  - European ebXML Showcase and eBES (Monica)
- **Next Steps**
  - ebXML IIC Testing Framework Adoption (Jacques)
  - Letter of Invitation for Participation (Nenad)
  - Next OAG Meeting in Washington D.C. (Nenad)



# OAG/NIST B2B Interoperability TestBed

## Purpose

- The OAGI/NIST Testbed is an open on-going initiative to enhance the capability for on-demand interoperability demonstration and testing for use by:
  - software vendors
  - customers
  - standards organizations
  - and other stake holding parties

# TestBed Roadmap (Vision)

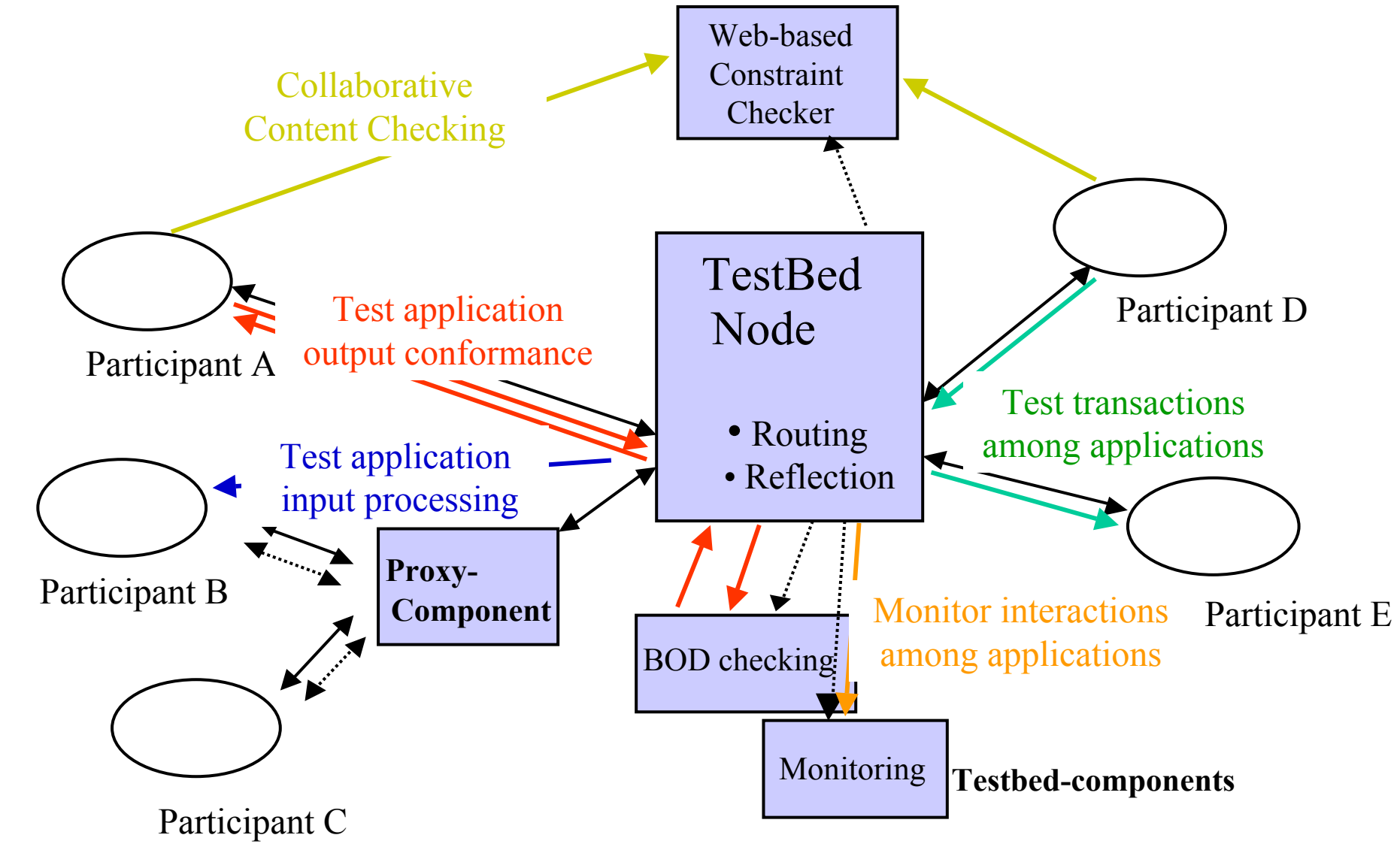

**Initial capability**:
• Web-based infrastructure for interoperability demonstrations any time, any place via Web browser.

**Ultimate vision**:
• Distributed, living testbed allowing customer-driven A2A interoperability testing
• Demonstrate A2A over B2B infrastructures such as ebXML, RosettaNet, etc...

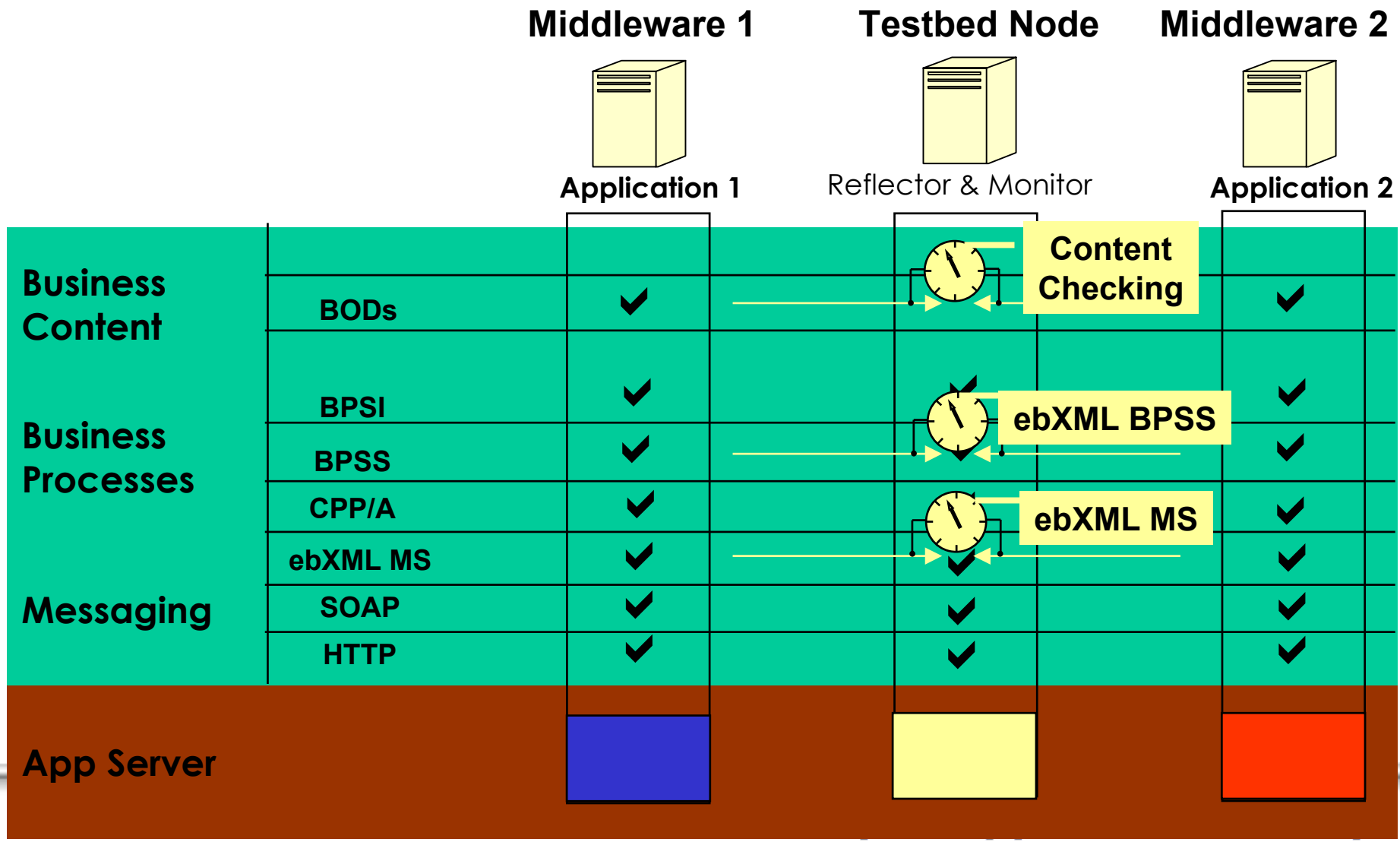
| | | |
|---|---|---|
| Distributed and Living Demo | Distributed and Living Demo | Distributed and living testbed |
| Vendor-driven Scenarios | User-driven scenarios | User-driven interop. scenarios |
| No metrics | No metrics | User and vendor-defined metrics |
| One-time building cost | One-time building cost | Periodical, interim, and on-demand testing |
| DONE | DONE | |

**Key Characteristic:**
A non-competitive, non-biased environment enabling resource-sharing and coordinated activities

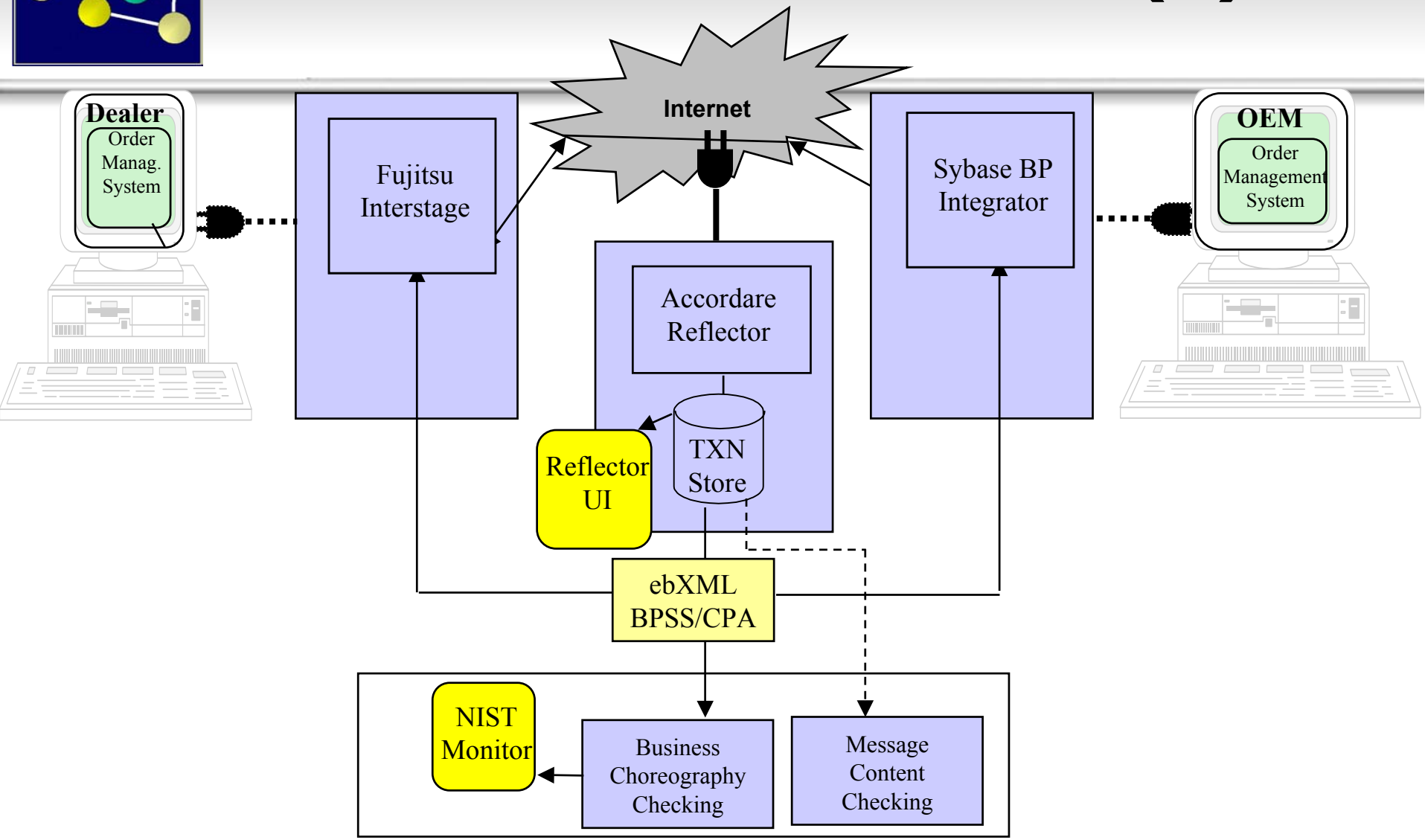
# Testbed Functionality



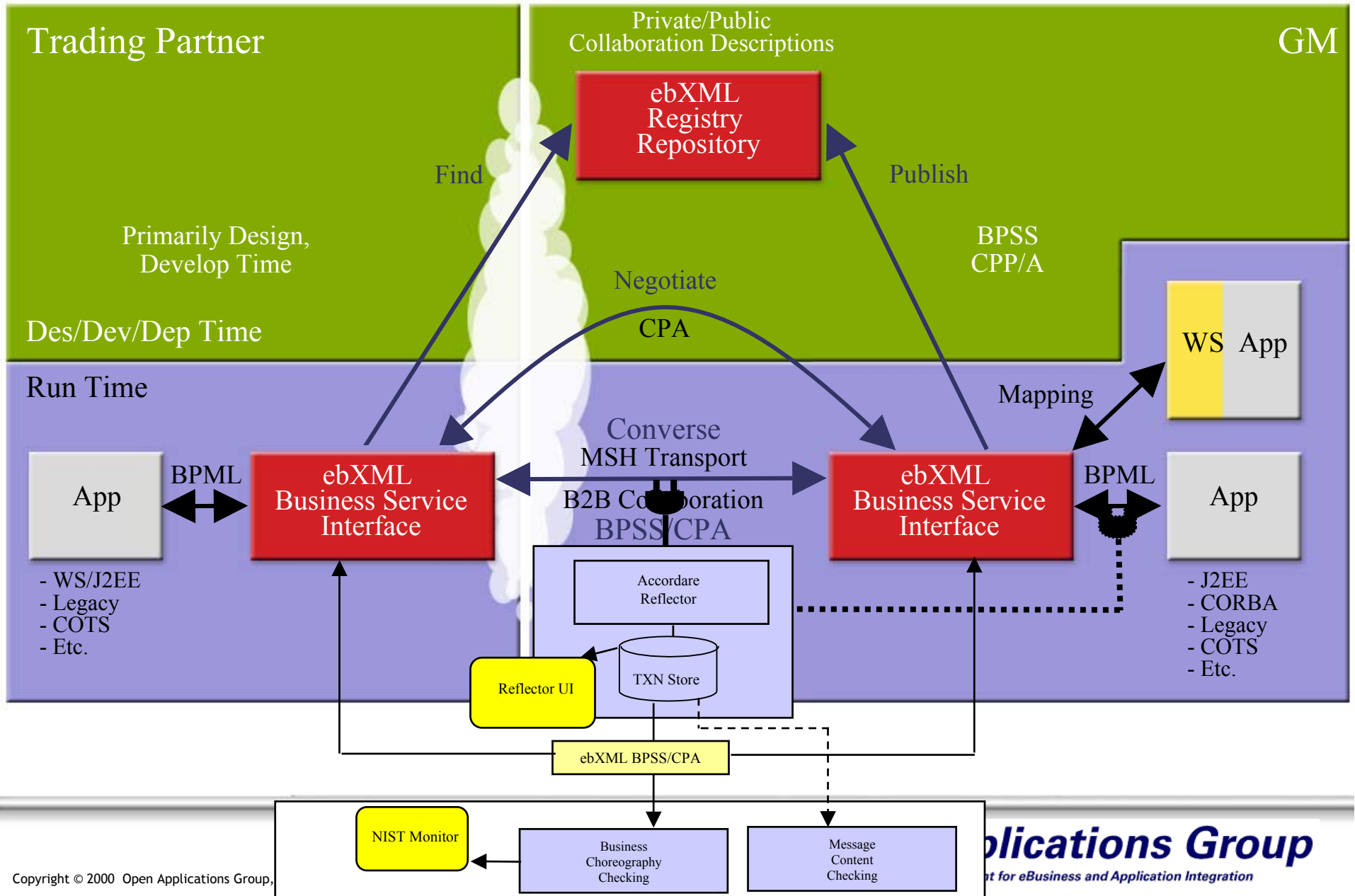
# Testbed Architecture (1)

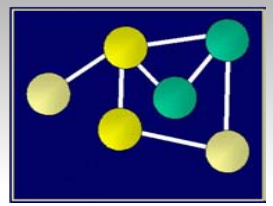


# Testbed Architecture (2)



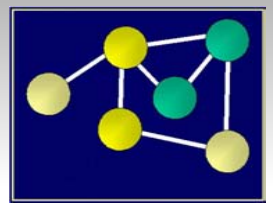
# Supporting a GM-motivated SOA





# A Focus Area: Message Content Checking

- Motivation
  - Flexibilities built into content standard
  - Separation of content standard into separate layers
  - Insufficient expressiveness in most popular schema language
- Objective:
  - To provide  a facility for the standard developers, users, and implementer to precisely specify, extend, and test for interoperability and conformance with semantics from the common data dictionary

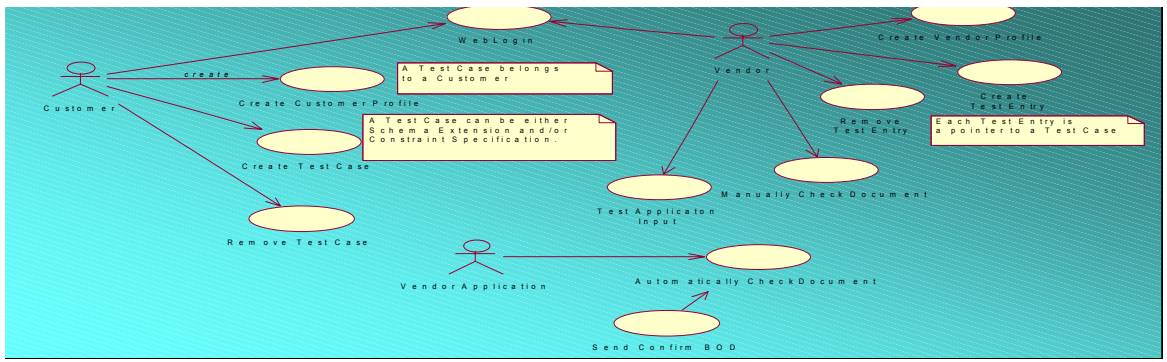


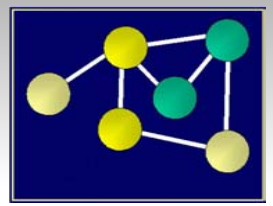
# Content Checking: Benefits

- Standard Developers
  - Larger adoptions
- Standard Customers
  - Learn the potential benefits of standards
  - Test the standard implementation
  - Validate the content at runtime
- Standard Implementers
  - Test software during development
  - Test software during production
- Bottom Line
  - Reduce integration cost and time

# Content Checking: Testbed Roles

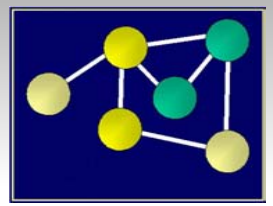
- Functionalities for:
  - Standard developers and users to specify and distribute interoperability & conformance test case
  - Implementers/Vendors to perform the test
    - Conformance mode
    - Interoperability mode





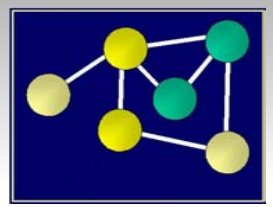
# Content Checking: Status and Next Steps

- Status:
  - Working web-based capability for collaborative constraint definition and checking – manual mode
- Next steps:
  - User interface to define content constraint
  - Interoperability Testing
  - Test on the wire
  - Scenario-based testing (multiple messages)



# Focus Area: Business Processes Monitoring and Testing

- Motivation
  - Crucial role of BP in achieving bottom line of business integration – streamline and automate BP
  - Different implementations among vendors - misalignment
  - The necessity for each BP specification to be tested
  - Testing and demonstration of human coordination or intervention
  - Demonstration of how BP helps in achieving the bottom line
  - BP Engine dependency to other components
  - Changes in physical business process
- Objective
  - To provide business process choreography interoperability and conformance checking with respect to specified business process specification

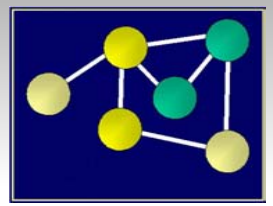


# Business Processes Monitoring and Testing: Testbed Roles

- Functionalities for:
  - Real-time monitoring capability
  - Real-time checking of conformance with time-dependent constraints and choreography specifications
  - Test automation - test script
  - Virtual Trading Partner
    - Conformance testing
    - Step through functionality – Business Logic and Exception handling

# Business Processes Monitoring and Testing: Status and Next Steps

- Status
  - Web-based real-time choreography monitoring tool according to ebXML BPSS
  - Accordare: web-based real-time transport level monitoring tool
  - Accordare: web-based real-time transaction level monitoring tool
- Next Steps
  - Update the current web-based tool
  - Define test script
  - Create Virtual Trading Partner
  - Enable test automation



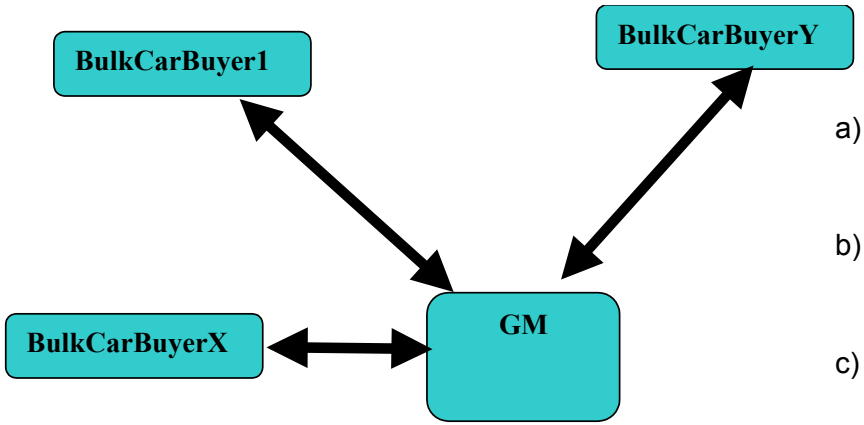
# Focus Area: Security Demonstration and Testing

- Motivation:
  - Myriad of services available for
    - consumption,
    - production &
    - mediation
  - Security threats will emerge from various connector points in systems
  - E-Business Architectures are vulnerable to these security weak links.
  - Will get worse with proliferation of service oriented architectures.
  - Providers, Consumers, Registries and Intermediaries are affected.

# Focus Area: Security Demonstration and Testing

- Objective:
  - To addresses various security threats that may affect different actors in e-business processes:
    - authentication
    - authorization
    - non-repudiation
    - accessibility
    - confidentiality
    - integrity

# Threat Scenarios: Enterprise-Partners




a) "BulkCarBuyerX" masking as "BulkCarBuyer1" and trying to access the system – Authentication

b) "BulkCarBuyerX" masking as GM to convey wrong information to "BulkCarBuyer1" - Authentication

c) "BulkCarBuyer1" accessing services allowed for BulkCarBuyerY - Authorization

d) "BulkCarBuyer1" sending a query and later denying that particular request – Non-repudiation

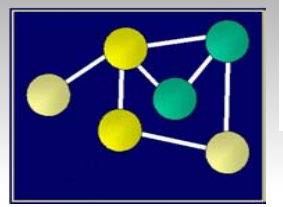
e) "BulkCarBuyerX" trying to take down trading system at GM - Accessibility

f) "BulkCarBuyerX" viewing the contents of PO being sent to GM to evaluate trading characteristics of "BulkCarBuyer1" – Confidentiality

g) "BulkCarBuyerX" changing the status response contents to convey an incorrect part order status with GM - Integrity

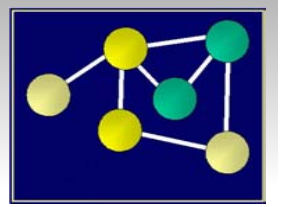
# Status and Next Steps

- Status:
  - Identified security threat scenarios
  - Conceptual architecture for testbed security demonstration and testing capability
- Next steps:
  - Testbed can provide monitoring as well as testing functionalities.
  - The functionalities associated with the monitoring may include keep track of certificates exchanged between partners.
  - Coupled with the work from ebXML IIC, test harness may be developed which enable the MSH testing with respect to the IIC test cases and testing framework



# A GM Supply Chain Use Case

- POC:  Fred Falten
- Organization: Produce Product, Supply Chain
- Project alternatives:
  - Plant to Supply Chain
  - Plant to MRP
  - Plant floor

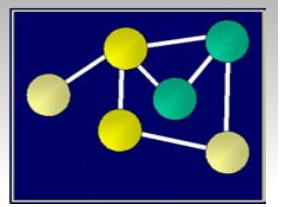


# A GM Supply Chain Use Case: Project Alternatives

- Plant to Supply Chain
  - An automated inventory update issued by GM plants to suppliers
  - Requires reaction by the suppliers to meet stock levels
  - Over MSH using BPSS and BODs
- Plant to MRP
  - An ebXML exchange between GM plants and a central MRP system
  - Over MSH using BPSS and BODs
- Plant floor
  - Extension of ebXML into the A2A space, specifically providing a semantic registry for Manufacturing Execution Systems (MES)
  - Using ebXML Registry (?)

# A GM Supply Chain Use Case: Next Steps

- February 25 conference will start defining
  - Possible projects and business case
  - Scope of deliverables
  - Roles for GM and the testbed partners
  - Development process
- Expectation
  - A start of an action plan defined in time for the April OAG meeting hosted by NIST
  - A planning session to detail activities in support of the GM SOA RI and the selected project

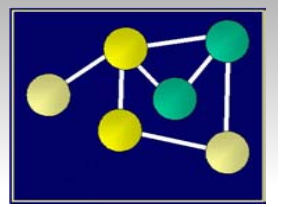


# Target: Testbed Action Plan

1) Identify the business use case – i.e. the details of the CPA / BPSS (e.g., GM Fleet Car Purchasing)
2) Define a technical white paper detailing the scope of the project and technical details of the interoperability testing. Define the phases of testing, i.e. initial phase for BPSS only, the second phase with security integration, etc.
3) Identify the vendors and manufactures to invite to participate in the interop testing
4) Get feedback from AIAG, STAR about the business process so that testing standardizes on business processes accepted by industry standard organizations.
5) Create separate documents concentrating on individual phases.
6) Build a project plan and time line for the project implementation.
7) Construct and distribute the invitation letter to participants. Defining the timeline and required commitments. These would be based on individual phases of the interop testing cycle.
8) Enhance the project plan based on the participant acceptance.
9) Announce the details, scope, participants, and kickoff of the project at the OAG meeting.

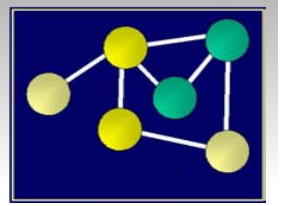
# An AIAG Project: Inventory Visibility and Interoperability

- POC:  Terry Onica (QAD)
- Organization: AIAG, Odette, OAG collaboration
- Project:  Inventory Visibility Software Interoperability (IV&I)



# An AIAG IV&I Project: Project Details

- Inventory Visibility Software Interoperability (IV&I)
  - Understand recommended business process for inventory visibility
  - Help identify a technical solution for interoperability
  - Implement the solution in a Pilot environment
  - Investigate
    - Web Services, ebXML
    - OAG BODs
    - Architecture solutions (messaging, directories)



# An AIAG IV&I Project: Next Steps

- Face-to-face workshop in March
  - QAD, SSI, NIST participants
  - define a prototypical business process
  - identify technical characteristics and issues
  - study information content to exchange
  - model application interfaces
- Expectation (by April meeting)
  - A detailed specification a prototypical business process
  - An detailed draft of an action plan for the testbed support
  - Commitment of participants to implement the initial solution in the testbed environment

# A GM Logistics Services Provider Use Case

- POC: Andrew Cameron
- Organization: Logistics Services Provider
- Project: Middleware interoperability readiness

# A GM Production Support Use Case: Project Details

- Middleware interoperability readiness
  - Develop/adopt tests to evaluate readiness of middleware products to interoperate in support of GM production requirements
  - Over MSH
  - Not planned to use BPSS

# A GM Logistics Services Provider Use Case

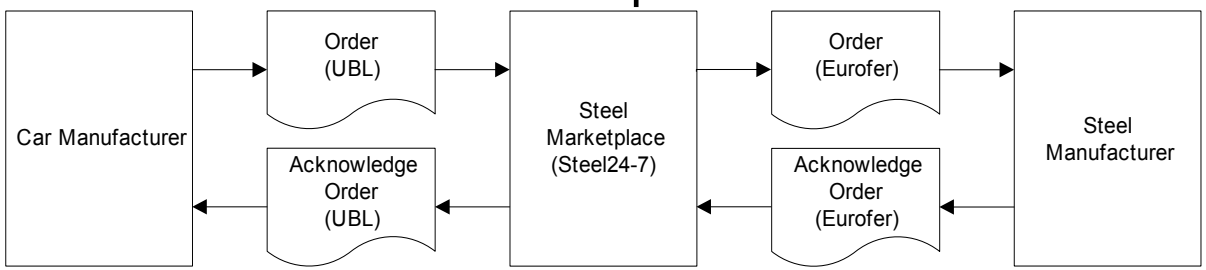
- On-going discussions to determine
  - Possible directions and business case
  - Scope of deliverables
  - Roles for GM and the testbed partners
- Expectation
  - A conference to detail activities in support of the GM production project
  - An action plan proposal

# The Korean B2B Interoperability Testbed

- Presenter: Prof. Hyunbo Cho, POSTECH

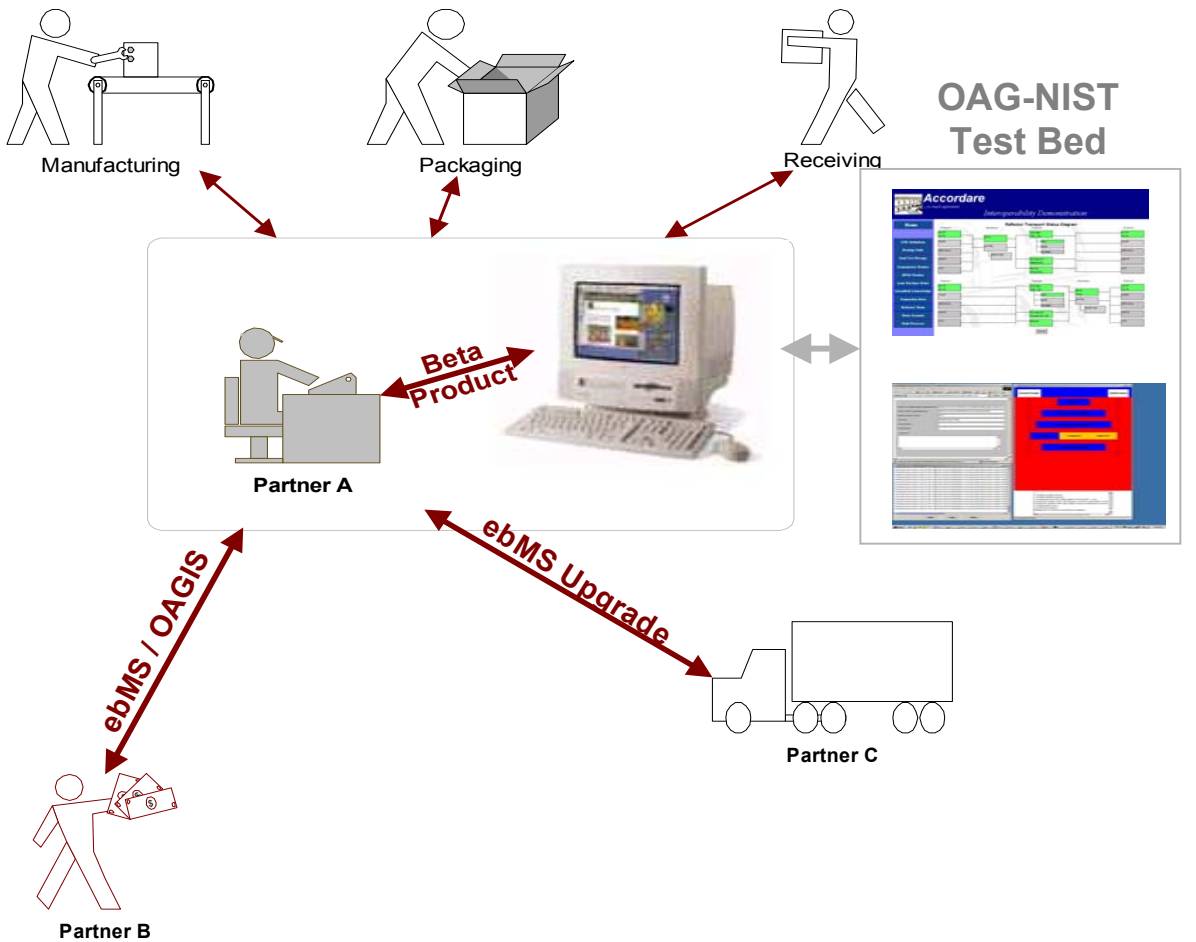
# The Potential European Collaboration

- eBES vendor forum – ebXML Interoperability Pilot
- Started in 2002 by CEN-ISSS and OASIS.
  - Incremental tests building on core functionality – payloads, error handling, signals, signatures, etc.
  - ebMS 2.0, ESIDEL (Steel industry), UBL and CPP/A (informal)
- Planned draft business scenario that integrates car and steel manufacturing. **Synergy possible with OAG-NIST Test bed – potential scenario, industry, and cross-regional opportunities.**
- Team will use two transformations across parties.



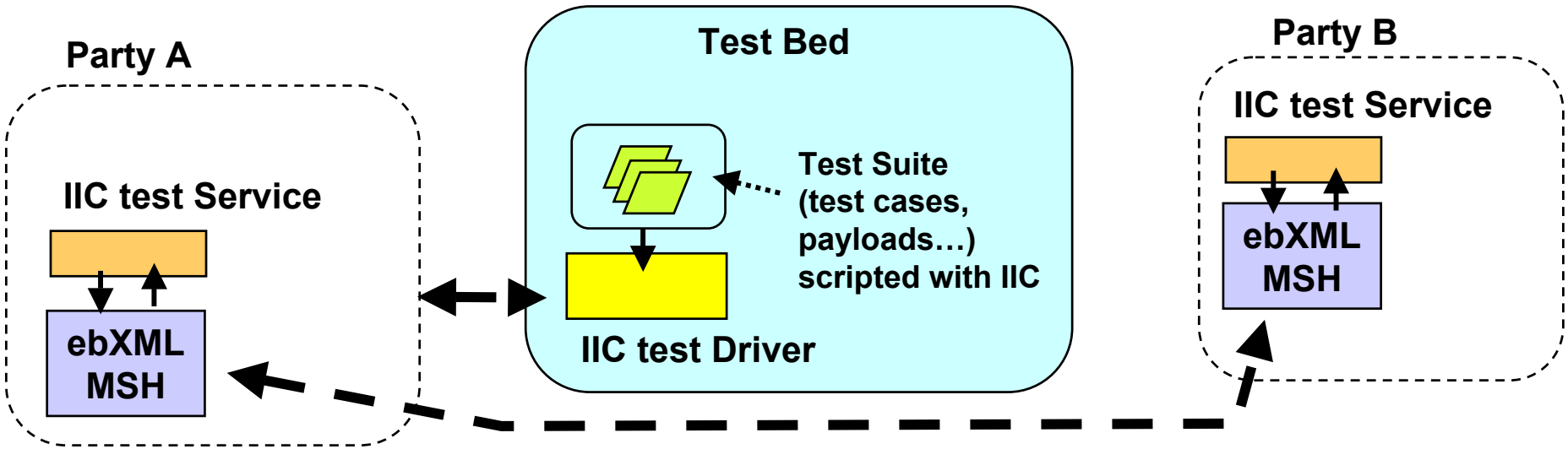
# ebXML IIC Test Framework – Interim Test

- **Framework for routine execution of test procedures using ebXML IIC test specifications.**
  - **Usage guidelines and/or templates**
  - **Limited or progressive test definitions**
- **Enable conformance and/or interoperability.**
  - **Supports progressive set of test activities and industry deployment efforts.**



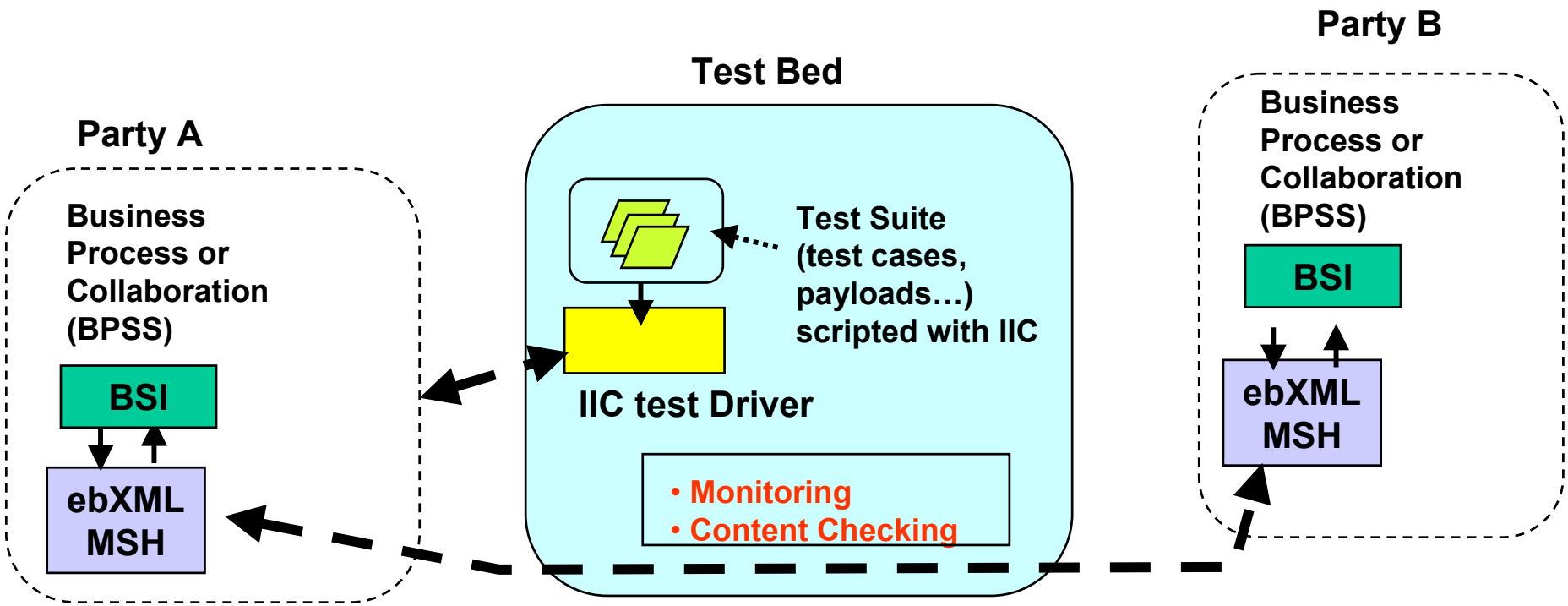
# ebXML IIC Testing Framework

- Objectives:
  - Routine testing → ease of use, automation
  - Interoperability testing:
    - (1) download IIC test components (Test Service)
    - (2) select test suite, download test CPAs
    - (3) Initiate the test suite (TestBed)



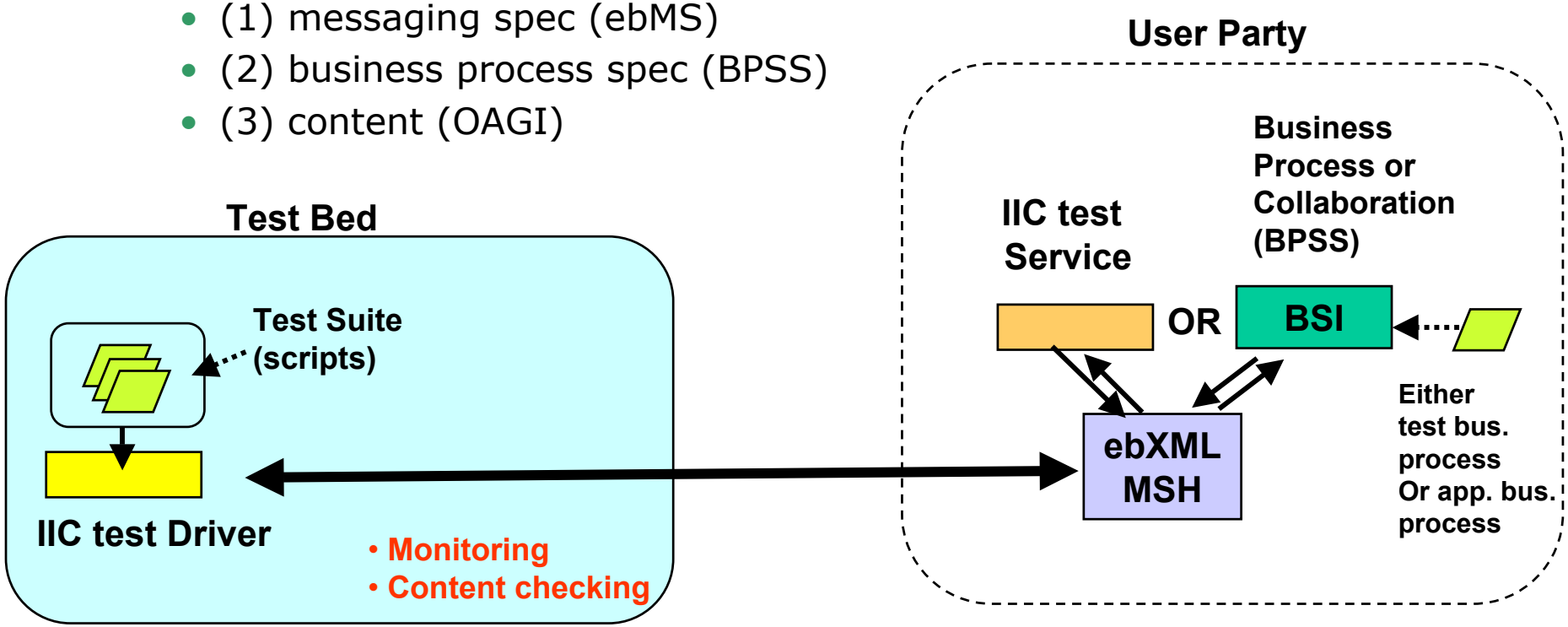
# ebXML IIC Testing Framework

- Business Process interoperability testing:
  - Execution Engine
  - Process definition / Choreography



# ebXML IIC Testing Framework

- Conformance (as well as Interoperability) testing
  - Can be driven from the TestBed (users subscribe for routine tests)
  - Supports Conformance testing to:
    - (1) messaging spec (ebMS)
    - (2) business process spec (BPSS)
    - (3) content (OAGI)



# Next Steps: An Open Letter of Invitation for Collaboration

- Objective:
  - To attract a wide participation of stakeholders who will advance the testbed capabilities through open, collaborative work
- Purpose:
  - Outline the benefits of testbed as a basis for the stakeholder buy-in
  - Receive feedback from stakeholders to understand where help is needed and where we can help out
- Approach:
  - Obtain GM, Ford, AIAG statement of support for the testbed action plan
  - Invite other potential users to work on other industry sectors statements of need
  - Invite vendors, consulting organizations
  - Invite standardization organizations to take stake in the testbed as a shared resource
  - Indicate international character of the testbed

# An Open Letter of Invitation for Collaboration

- Initial list of participants:
  - GM, Toyota, Daimler/Chrysler, Nissan, Ford
  - STAR, AIAG, APQP
  - BEA, Bind Systems, BitDeamons Ltd, Briyante, bTrade, Component-X, Cyclone Commerce, Dealersphere, Dimon Software, Drake Certivo, Drummond Group, eXcelon Corporation, Fujitsu Limited, HanMaek IT, IONA, IPNet Solutions Inc., iWay Software, Killdara Corp, Mercator, Oracle, SeeBeyond, Sun Microsystems, Sybase Inc, Sterling Commerce, TIBCO Software Inc, Vitria, WebMethods, XENI, XML Global Technologies, Zenaptix

Note: The letter will be openly published to attract participation of a wide community of stakeholders. The above list reflects initial contacts of the B2B testbed working group

# Next Steps: April Washington D.C. Meeting

- What we want to accomplish by April:
  - Create an outline of the action plan for at least one use case (e.g., GM, IV&I)
  - Send the open letter of invitation (Mid March)
  - Invite those who expressed interest in collaboration to attend the April meeting
- For the April meeting
  - Push forward to a finalized action plan with time line, deliverables, commitment by users and vendors